

PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Assistant Commissioner for Patents  
United States Patent and Trademark  
Office  
Box PCT  
Washington, D.C.20231  
ÉTATS-UNIS D'AMÉRIQUE

in its capacity as elected Office

Date of mailing (day/month/year) 26 February 2000 (26.02.00)	
International application No. PCT/NL99/00389	Applicant's or agent's file reference P22465PC00
International filing date (day/month/year) 24 June 1999 (24.06.99)	Priority date (day/month/year) 25 June 1998 (25.06.98)
Applicant VAARKAMP, Marius	

1. The designated Office is hereby notified of its election made:



in the demand filed with the International Preliminary Examining Authority on:

21 January 2000 (21.01.00)



in a notice effecting later election filed with the International Bureau on:

2. The election ☒ was



was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

<p>The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland</p> <p>Facsimile No.: (41-22) 740.14.35</p>	<p>Authorized officer Martine Lee</p> <p>Telephone No.: (41-22) 338.83.38</p>
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PCT

NOTIFICATION OF THE RECORDING  
OF A CHANGE(PCT Rule 92bis.1 and  
Administrative Instructions, Section 422)

From the INTERNATIONAL BUREAU

To:

OTTEVANGERS, S., U.  
Vereenigde  
Nieuwe Parklaan 97  
NL-2587 BN The Hague  
PAYS-BASDate of mailing (day/month/year)  
17 April 2000 (17.04.00)Applicant's or agent's file reference  
P22465PC00International application No.  
PCT/NL99/00389

## IMPORTANT NOTIFICATION

International filing date (day/month/year)  
24 June 1999 (24.06.99)

## 1. The following indications appeared on record concerning:

☐ the applicant ☐ the inventor ☒ the agent ☐ the common representative

## Name and Address

OTTEVANGERS, S., U.  
Vereenigde Octrooibureaux  
Nieuwe Parklaan 97  
NL-2587 BN The Hague  
Netherlands

State of Nationality

State of Residence

Telephone No.

070 4166711

Facsimile No.

070 4166799

Teleprinter No.

## 2. The International Bureau hereby notifies the applicant that the following change has been recorded concerning:

☐ the person ☐ the name ☒ the address ☐ the nationality ☐ the residence

## Name and Address

OTTEVANGERS, S., U.  
Vereenigde  
Nieuwe Parklaan 97  
NL-2587 BN The Hague  
Netherlands

State of Nationality

State of Residence

Telephone No.

070 4166711

Facsimile No.

070 4166799

Teleprinter No.

## 3. Further observations, if necessary:

Please note that the agent's company's name has changed.

## 4. A copy of this notification has been sent to:

☒ the receiving Office ☐ the designated Offices concerned  
☐ the International Searching Authority ☒ the elected Offices concerned  
☒ the International Preliminary Examining Authority ☐ other:The International Bureau of WIPO  
34, chemin des Colombettes  
1211 Geneva 20, Switzerland

Authorized officer

Céline Faust

Facsimile No.: (41-22) 740.14.35

Telephone No.: (41-22) 338.83.38

From the  
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

PCT

NOTIFICATION OF TRANSMITTAL OF  
THE INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT

(PCT Rule 71.1)

To:

OTTEVANGERS, S.U.  
VEREENIGDE

Nieuwe Parklaan 97  
NL-2587 BN The Hague

PAYS-BAS

20 SEP. 2000

NRF<sub>2</sub> 25-12-2000

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Applicant's agent's file reference

P22465PC00

Date of mailing  
(day/month/year)

15.09.2000

## IMPORTANT NOTIFICATION

International application No.  
PCT/NL99/00389International filing date (day/month/year)  
24/06/1999Priority date (day/month/year)  
25/06/1998

Applicant

ENGELHARD CORPORATION et al.

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.

## 4. REMINDER

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

Name and mailing address of the IPEA/



European Patent Office  
D-80298 Munich  
Tel. +49 89 2399 - 0 Tx: 523656 epmu d  
Fax: +49 89 2399 - 4465

Authorized officer

Gregoire, J-P

Tel. +49 89 2399-8041



INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference <b>P22465PC00</b>	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. <b>PCT/NL99/00389</b>	International filing date (day/month/year) <b>24/06/1999</b>	Priority date (day/month/year) <b>25/06/1998</b>
International Patent Classification (IPC) or national classification and IPC <b>B01J38/60</b>		
Applicant <b>ENGELHARD CORPORATION et al.</b>		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.



2. This REPORT consists of a total of 5 sheets, including this cover sheet.

☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 1 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☒ Certain observations on the international application

Date of submission of the demand  <b>10/01/2000</b>	Date of completion of this report  <b>15.09.2000</b>
Name and mailing address of the international preliminary examining authority:   <b>European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465</b>	Authorized officer  <b>Jourdan, A</b>  Telephone No. +49 89 2399 8349  

# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/NL99/00389

## I. Basis of the report

1. This report has been drawn on the basis of (*substitute sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments.*):

### Description, pages:

1-5 as originally filed

### Claims, No.:

2-16 as originally filed

1 as received on 07/09/2000 with letter of 07/09/2000

2. The amendments have resulted in the cancellation of:

- ☐ the description, pages:  
☐ the claims, Nos.:  
☐ the drawings, sheets:

3. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

4. Additional observations, if necessary:

## V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

### 1. Statement

Novelty (N)	Yes:	Claims 1-15
	No:	Claims 16
Inventive step (IS)	Yes:	Claims
	No:	Claims 1-16
Industrial applicability (IA)	Yes:	Claims 1-16
	No:	Claims

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. PCT/NL99/00389

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2. Citations and explanations

**see separate sheet**

**VIII. Certain observations on the international application**

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

**see separate sheet**

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT - SEPARATE SHEET**

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International application No. PCT/NL99/00389

V.

1. The subject-matter of claims 1-15 meets the novelty requirement of Article 33 (2) PCT.

Closest prior art is FR-A-2 325 289 (D2). D2 discloses the regeneration of reforming catalysts. The catalyst are bifunctional and comprise a support and a platinum metal (page 8, lines 6-8). The support can be selected from silica-alumina (page 7, line 33). The regeneration comprises a combustion treatment, an oxychlorination, wherein acids such as HBr, HF,  $\text{Cl}_3\text{CCOOH}$  and  $\text{ClH}_2\text{CCOOH}$  can be used (page 5, line 18 to page 6, line 3), an oxygen treatment and a reduction under a flow of hydrogen (see claim 1). The oxygen treatment and the hydrogen treatment are carried out in a temperature range of between 350 and 500°C (see claim 2 et page 6, lines 9-28).

As in D2 the catalyst is not impregnated with an acid in liquid state, the claimed regeneration process is novel.

2. However, novelty of the subject-matter of claim 16 cannot be acknowledged. As hydrogenation, hydroisomerisation, hydrodesulfurisation or hydrodewaxing in the presence of a catalyst, comprising at least one precious metal on an amorphous silica-alumina support, is well-known in the art (see e.g. D2, page 1, lines 7-17), such a process would only be novel if the catalyst were novel.

At present there is no indication that the regeneration process transforms the catalyst into a catalyst that can be clearly distinguished from fresh catalyst or otherwise regenerated catalyst. The degree of dispersion of a catalyst impregnated with HCl and oxidised in wet air at 400°C, is worse than a untreated catalyst.

3. No inventive step can be acknowledged for the subject-matter of claims 1-15 in view of the combination of D2 with D3.

The examples on page 5, table 1 merely show that the degree of dispersion of a

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/NL99/00389

catalyst regenerated according to the claimed process (HCl imp, dry air 400°C/ wet air 400°C/ H<sub>2</sub> 300°C) varies between 0.07 and 0.33 whereas the comparative examples exhibit values between 0.07 and 0.25. Thus the claimed process does not solve the problem to redisperse the precious metal over the whole scope of the claim. Therefore, the objective problem that is solved is to provide a further regeneration process. However, the solution of this problem is obvious in view of CH 486 498 A (D3). D3 teaches the regeneration of palladium-containing catalysts. The catalysts are either treated with a humid chlorine gaz stream or with an acid in liquid state (such as HCl) in combination with hydrogen peroxide before reduction. Thus the skilled person would conclude that treatment with a gaseous chlorine and aqueous HCl is equivalent for the regeneration of palladium catalysts. As D2 discloses a regeneration process for catalyst with different supports as alumina, silica-alumina and silica (page 7, lines 31-33) the skilled person would not have disregarded D3, because of the silica support.

Even the subject-matter of claims 3-5 cannot be regarded as inventive in absence of an effect that is demonstrated by the replacement of a humid chlorine-containing gaz with an aqueous HCl-solution. None of the examples is suited as a comparison with the closest prior art D2, i.e. which varies only in the single distinguishing feature.

VIII.

1. In view of the results as shown in table 1, it seems to be essential for obtaining a high degree of dispersion that the oxidation occurs in a dry atmosphere.

Since independent claim 1 does not contain this feature (dry atmosphere), it does not meet the requirement following from Article 6 PCT taken in combination with Rule 6.3(b) PCT that any independent claim must contain all the technical features essential to the definition of the invention.



New Page 6

New claim

1. Process for the regeneration of a catalyst, said catalyst comprising at least one precious metal on an amorphous silica-alumina support, in which process the catalyst is impregnated with an acid in liquid state, followed by reduction or oxidation of the impregnated catalyst at a temperature above  
5 200° C.

# PCT

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference P22465PC00	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/NL99/00389	International filing date (day/month/year) 24/06/1999	Priority date (day/month/year) 25/06/1998
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Date of submission of the demand  10/01/2000	Date of completion of this report  15.09.2000
Name and mailing address of the international preliminary examining authority:   European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized officer  Jourdan, A  Telephone No. +49 89 2399 8349



# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/NL99/00389

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4. Additional observations, if necessary:

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Novelty (N)	Yes:	Claims 1-15
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Inventive step (IS)	Yes:	Claims
	No:	Claims 1-16
Industrial applicability (IA)	Yes:	Claims 1-16
	No:	Claims

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. PCT/NL99/00389

---

2. Citations and explanations

**see separate sheet**

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The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

**see separate sheet**

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As in D2 the catalyst is not impregnated with an acid in liquid state, the claimed regeneration process is novel.

2. However, novelty of the subject-matter of claim 16 cannot be acknowledged. As hydrogenation, hydroisomerisation, hydrodesulfurisation or hydrodewaxing in the presence of a catalyst, comprising at least one precious metal on an amorphous silica-alumina support, is well-known in the art (see e.g. D2, page 1, lines 7-17), such a process would only be novel if the catalyst were novel.

At present there is no indication that the regeneration process transforms the catalyst into a catalyst that can be clearly distinguished from fresh catalyst or otherwise regenerated catalyst. The degree of dispersion of a catalyst impregnated with HCl and oxidised in wet air at 400°C, is worse than a untreated catalyst.

3. No inventive step can be acknowledged for the subject-matter of claims 1-15 in view of the combination of D2 with D3.

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catalyst regenerated according to the claimed process (HCl imp, dry air 400°C/ wet air 400°C/ H<sub>2</sub> 300°C) varies between 0.07 and 0.33 whereas the comparative examples exhibit values between 0.07 and 0.25. Thus the claimed process does not solve the problem to redisperse the precious metal over the whole scope of the claim. Therefore, the objective problem that is solved is to provide a further regeneration process. However, the solution of this problem is obvious in view of CH 486 498 A (D3). D3 teaches the regeneration of palladium-containing catalysts. The catalysts are either treated with a humid chlorine gas stream or with an acid in liquid state (such as HCl) in combination with hydrogen peroxide before reduction. Thus the skilled person would conclude that treatment with a gaseous chlorine and aqueous HCl is equivalent for the regeneration of palladium catalysts. As D2 discloses a regeneration process for catalyst with different supports as alumina, silica-alumina and silica (page 7, lines 31-33) the skilled person would not have disregarded D3, because of the silica support.

Even the subject-matter of claims 3-5 cannot be regarded as inventive in absence of an effect that is demonstrated by the replacement of a humid chlorine-containing gas with an aqueous HCl-solution. None of the examples is suited as a comparison with the closest prior art D2, i.e. which varies only in the single distinguishing feature.

VIII.

1. In view of the results as shown in table 1, it seems to be essential for obtaining a high degree of dispersion that the oxidation occurs in a dry atmosphere.

Since independent claim 1 does not contain this feature (dry atmosphere), it does not meet the requirement following from Article 6 PCT taken in combination with Rule 6.3(b) PCT that any independent claim must contain all the technical features essential to the definition of the invention.

New Page 6

New claim

1. Process for the regeneration of a catalyst, said catalyst comprising at least one precious metal on an amorphous silica-alumina support, in which process the catalyst is impregnated with an acid in liquid state, followed by reduction or oxidation of the impregnated catalyst at a temperature above  
5 200°C.

## INTERNATIONAL SEARCH REPORT

National Application No

PCT/NL 99/00389

A. CLASSIFICATION OF SUBJECT MATTER  
IPC 6 B01J38/60 B01J23/96

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
IPC 6 B01J

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 3 804 777 A (CANAVESI R ET AL) 16 April 1974 (1974-04-16)  claims 1,2 column 1, line 30 - line 34	1,2, 9-11, 14-16
Y	---	6
Y	FR 2 325 289 A (INST FRANCAIS DU PETROL) 15 April 1977 (1977-04-15) claims 1,4 page 8, line 10 - line 20	6
A	CH 486 498 A (KNAPSACK AKTIENGESELLSCHAFT) 28 February 1970 (1970-02-28)	
A	US 3 879 311 A (SCHOTT STUART ET AL) 22 April 1975 (1975-04-22)  --- -/--	

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

## Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance  
 "E" earlier document but published on or after the international filing date  
 "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)  
 "O" document referring to an oral disclosure, use, exhibition or other means  
 "P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention  
 "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone  
 "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.  
 "&" document member of the same patent family

Date of the actual completion of the international search

17 September 1999

Date of mailing of the international search report

29/09/1999

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2  
 NL - 2280 HV Rijswijk  
 Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  
 Fax: (+31-70) 340-3016

Authorized officer

Thion, M



# INTERNATIONAL SEARCH REPORT

International Application No

PCT/NL 99/00389

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication where appropriate, of the relevant passages	Relevant to claim No.
A	EP 0 778 085 A (EKA CHEMICALS AB) 11 June 1997 (1997-06-11) -----	

## INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/NL 99/00389

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 3804777	A	16-04-1974	CH 537210 A	13-07-1973
			DE 2136699 A	24-02-1972
			FR 2103247 A	07-04-1972
			GB 1308414 A	21-02-1973
			JP 51047675 B	16-12-1976
			NL 7110034 A	25-01-1972
			YU 191971 A,B	30-04-1979
FR 2325289	A	15-04-1977	NONE	
CH 486498	A	28-02-1970	BE 683856 A	16-12-1966
			DE 1243156 B	
			DE 1542257 A	16-04-1970
			DK 128269 B	01-04-1974
			FR 1510844 A	05-04-1968
			GB 1084159 A	
			LU 51465 A	06-09-1966
			NL 6609548 A,B	10-01-1967
			SE 328562 B	21-09-1970
			US 3488295 A	06-01-1970
US 3879311	A	22-04-1975	AU 6828174 A	30-10-1975
			BE 814275 A	28-10-1974
			CA 1018506 A	04-10-1977
			DE 2420374 A	07-11-1974
			FR 2227049 A	22-11-1974
			GB 1473217 A	11-05-1977
			IT 1010127 B	10-01-1977
			JP 50013292 A	12-02-1975
			NL 7405672 A	29-10-1974
EP 0778085	A	11-06-1997	CA 2191687 A	05-06-1997
			JP 9173872 A	08-07-1997
			NO 965069 A	05-06-1997